University of Agronomic Sciences and Veterinary Medicine of Bucharest
Faculty of Horticulture

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Title:
A study on biological and technological parameters for some *Chrysanthemum* varieties

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Introduction

Sursa: https://www.nippon.com/en/guide-to-japan/b08104/

- **The chrysanthemum** is native to Central China (1500 BC), in Japan it was discovered in spontaneous flora somewhere in the eighth century, whereas in Europe it entered somewhere in the seventeenth century brought by the Dutch (***Matricaria japonica* Desr.**);
- Etymology - its name comes from the Greek language from „***chrisos***" which means **gold** and "***anthemon***" which translates to *flower*, so "***golden flower***".

- It is a perennial herbaceous plant in the form of a bush, of the genus ***Chrysanthemum***. The best known species of the genus are: ***Chrysanthemum x morifolium* Ramat** and ***Chrysanthemum indicum* L.**.
- It is a short day plant, which blooms naturally in autumn, but it may also be cultivated 2-3 cycles per year.
- It reaches heights between 50 and 150 cm, and the flowers are on type 5 and grouped in an inflorescence (*calatidium*). It has ligulate flowers and/or tubular flowers with various colors, shapes and sizes. The most common types are: daisy, anemone, pompom, spider and globulus.
- Chrysanthemums symbolize happiness, love, wisdom, joy, but also health and longevity. They are part of our lives and delight our eyes with their aesthetic qualities.
- Globally, it is cultivated on hundreds of hectares in countries such as the Netherlands, Colombia, England, France and others.

Materials and Methods

- The cuttings were **planted** in a location in Bucharest, at the beginning **of July 2019.**

- Height of cuttings: 14 - 15 cm
- Number of leaves: 10 leaves / cutting
- Stem diameter: 0.32 - 0.35 cm

- To follow the evolution of chrysanthemums for cut flowers, the following medium-sized varieties were used: "**Ganche**", "**Rossano Yellow**" and "**Rossano White**"

Materials and Methods

- In order to establish the culture of chrysanthemums in pots, the following materials were purchased:
  - **Rooted cuttings**
  - **Peat** – ”Kekkila Professional”
  - **Perlite** - Horticultural 4
  - **Pots** - diameter 9 cm and 19 cm
  - **Fertilizer** – ”Osmocote Exact 5-6 months

Materials and Methods

- **Evolution** of plants one month after planting (**August 2019**)

Materials and Methods

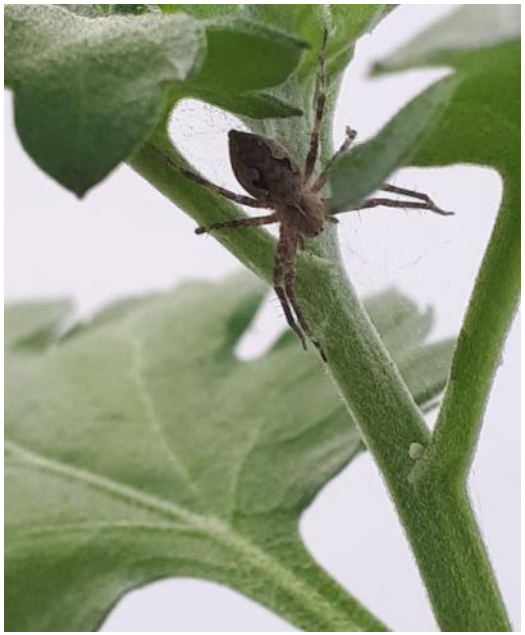
- Due to the abundance of plant material, some chrysanthemums were planted in the ground, in the garden.

Materials and Methods

- Other chrysanthemums were **transplanted** into larger pots (diameter 19 cm).
- Fertilizer (Exact Osmocote) was added to the substrate transplant.

Materials and Methods

- **Treatments** against diseases and pests applied:
  - Dithane M45-0.2%;
  - Ortiva Top- 0.08%;
  - Mospilan 20 SG-0.03%
  - Nissorun 10 WP-0.03%.

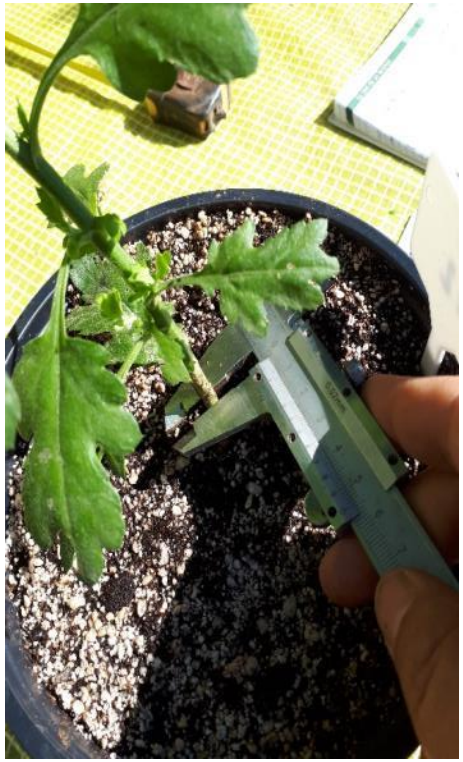


Materials and Methods

- After a storm, **the palisade** system was improved.

Materials and Methods

- The selected varieties were managed as **standard-type** growing with a single flower on the stem.



- Measurements and notations were performed, as well as other necessary operations to maintain the crop (for example, the removal of superfluous buds - „**disbudding**").

Results and Discussions

- During the plants evolution in culture, a series of chrysanthemums **biological and ornamental** characteristics were followed (Table 1.).

Table 1. Morphological and ornamental characteristics of chrysanthemum plants

Variations	Variety	Variety color	Stem height (cm)	Diameter at the package (cm)	Number of leaves	Flower diameter (cm)
V 1	*Ganche*	red	100,47	0,56	37	8,53
V 2	*Rossano Yellow*	yellow	93,97	0,69	44	9,30
V 3	*Rossano White*	white	91,43	0,66	41	9,62

Results and discussions

- Aspects of chrysanthemum cultivation (**autumn 2019**)
- The variety to flower the earliest was V1 ("Ganche" variety)

”Ganche”

”Rossano Yellow”

”Rossano White”

Results and Discussions

- In terms of height, V1 stands out - the “**Ganche**” variety with an average height of 100.47 cm, but with the smallest flower diameter (8.53 cm) and the smallest number of leaves (37).
- The “**Rossano Yellow**” variety (V2) is very little different from the “**Rossano White**” variety (V3) in terms of stem height and package diameter.
- At the diameter of the flower, V3 - the “**Rossano White**” variety registered the highest value (9.62 cm), both compared to V2 - the “**Rossano Yellow**” variety (insignificant), but also compared to V1 - the “**Ganche**” variety.
- In terms of number of leaves, V2 - the "**Rossano Yellow**" variety has the most leaves, with an average of 44 leaves per plant. It is preceded by V3 - "**Rossano White**" variety (41) and then by V1 - "**Ganche**" variety (37).

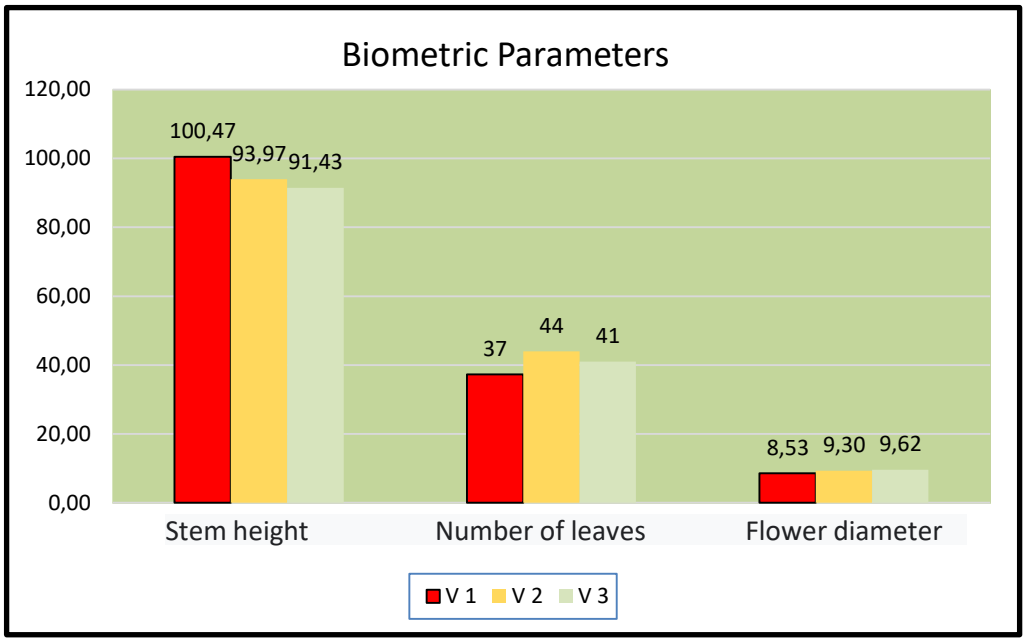


Figure 1. Biometric parameters of *Chrysanthemum* varieties

Results and Discussions

- In the "**Rossano White**" variety, a change in the flower color from white to pink could be observed. This is explained by the large oscillation of day and night temperatures for September 2019 in the Bucharest area (**Figure 2.**)., There were differences of more than 20 degrees Celsius between night and day over more than 10 days during this month.
- This color change from white to pink is considered a quality defect for the cut flower trade.

”Rossano White”

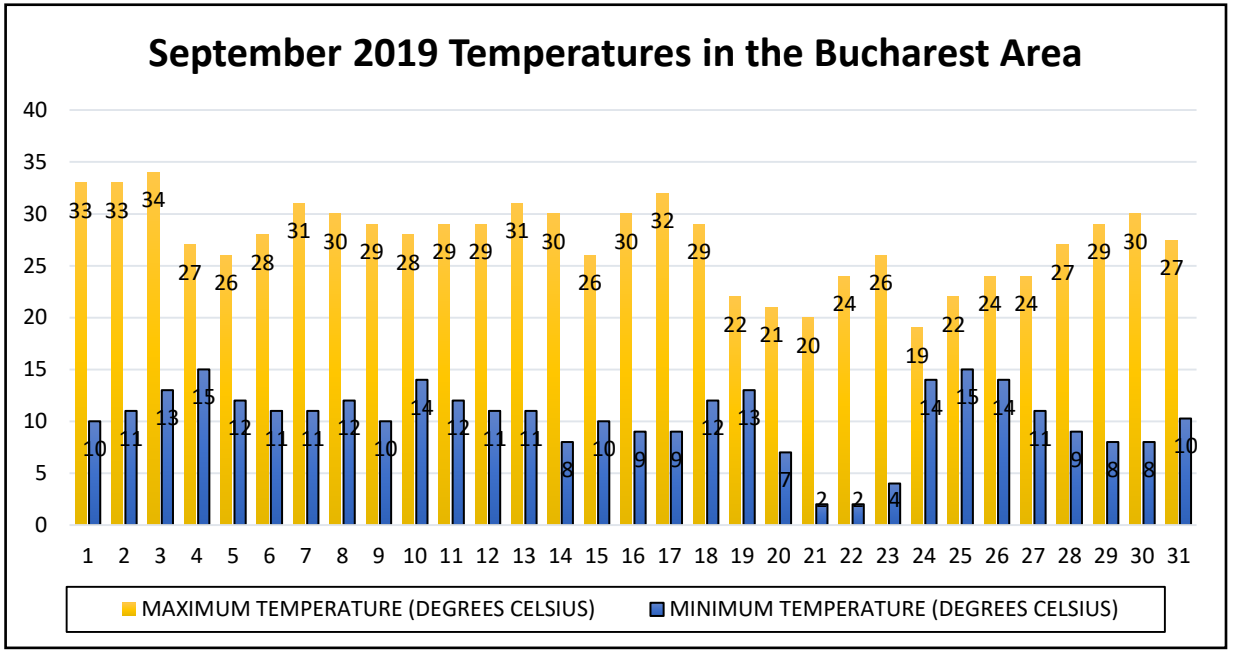


Figure 2. Minimum and maximum temperature values for September 2019

Source: https://www.accuweather.com/ro/ro/bucharest/287430/september-weather/287430?year=2019

Conclusions and Recommendations

- It is recommended to cultivate V1 - the "**Ganche**" variety for its early age and for its ornamental value (dark red color), however the slightly poorer quality of the stem must be taken into account.
- It is recommended to cultivate V2 - the "**Rossano Yellow**" variety for the firmness of the stem, for the slightly richer and more resistant foliar coating, but also from a decorative point of view.
- The V3 – variety "**Rossano White**" is recommended to be cultivated in protected areas, where the temperature can be controlled and there is no risk of color change.
- All 3 varieties have a relatively short reaction time.

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Thank you!